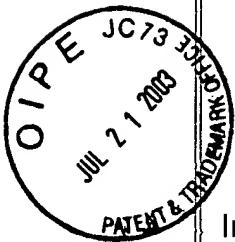


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Appeal Brief
Summer

PATENT

Customer No. 22,852

Attorney Docket No. 2418.0128-00



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Herfried LAMMER) Group Art Unit: 3711
Application No.: 09/918,437) Examiner: R. Chiu
Filed: August 1, 2001)
For: RACKET WITH SELF-POWERED)
PIEZOELECTRIC DAMPING)
SYSTEM (As Amended))

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

In support of the Notice of Appeal filed January 21, 2003, and pursuant to 37 C.F.R. § 1.192, Appellant submits this Appeal Brief, in triplicate, and encloses herewith the fee payment of \$320.00 required under 37 C.F.R. § 1.17(c). This appeal is in response to the final Office Action of October 21, 2002, and is timely filed in view of the Notice of Appeal filed on January 21, 2003, and the four-month Petition for Extension of Time filed herewith.

I. Real Party in Interest

The real party in interest is HEAD Sport Aktiengesellschaft, the assignee of the entire right, title, and interest in this application.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

07/22/2003 00000119 09918437
02 FEB 2003 408.4000
Fax 202.408.4400
www.finnegan.com

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II. Related Appeals and Interferences

There are currently no other related appeals or interferences known to Appellant, Appellant's legal representative or the assignee that would directly affect or be directly affected by the pending appeal before the Board of Patent Appeals and Interferences.

III. Status Of Claims

Claims 1-14 are pending and involved in this appeal. A copy of these claims are provided in the attached Appendix. Each of claims 1-14 stand rejected.

IV. Status Of Amendments

No amendments have been filed subsequent to the final rejection of claims 1-14 in the final Office Action dated October 21, 2002.

V. Summary Of Invention

The invention relates to a racket for ball sports including electronics for dampening vibrations of the racket during use. The racket includes a racket frame and a self-powered piezoelectric damping system. The self powered piezoelectric damping system includes at least one transducer element and at least one circuit. See specification at page 6, paragraph no. 46, lines 3-8, and Fig. 1. The circuit is located within a racket handle portion and is electrically connected to the at least one transducer element. See page 7, paragraph no. 47, lines 1-3. The at least one transducer element may be laminated to the racket frame and the circuit may be affixed within a slot in the racket handle portion. See page 6, paragraph no. 46, lines 3-8, and page 7, paragraph no. 47, lines 1-3.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Upon impact of a ball with the racket during play, high frequency vibrations are generated on the racket. The at least one transducer element converts these mechanical vibrations to electrical energy. This energy is then transferred to the circuit, which, in turn, temporally stores the energy and re-applies the energy to reduce or dampen the vibration of the racket. See page 10, paragraph 55, lines 1-3. The circuit sends a signal back to the at least one transducer to actuate the transducer to influence the racket's oscillation characteristics and actively dampen the mechanical vibrations. See page 6, paragraph no. 46, lines 9-18, and page 8, paragraph 51, lines 4-18.

VI. Issue

Whether the Board of Patent Appeals and Interferences should reverse the rejection of claims 1-14 as unpatentable under 35 U.S.C. § 103(a) over U.S. Patent Number 5,775,715 to Vandergrift (Vandergrift) in view of U.S. Patent Number 5,857,694 to Lazarus *et al.* (Lazarus) and U.S. Patent Number 5,869,189 to Hagood *et al.* (Hagood).

VII. Grouping Of Claims

Appealed claims 1-5 and 12 stand or fall together, appealed claims 6-10 and 13 stand or fall together, and appealed claims 11 and 14 stand or fall together. Accordingly, appealed claim groups 1-5 and 12, 6-10 and 13, and 11 and 14 do not stand or fall together.

VIII. Arguments

The Examiner rejected claims 1-14 under 35 U.S.C. § 103(a) as being obvious over Vandergrift in view of Lazarus and Hagood. The Board should reverse the

rejection because the Examiner has failed to establish the required *prima facie* case of obviousness. The prior art cited by the examiner does not disclose or suggest all of the limitations of the claims. For example, Vandergrift, Lazarus and Hagood all fail to disclose or suggest a racket including: (1) a self powered piezoelectric damping system including at least one transducer element laminated to the racket frame and at least one circuit located within a handle portion of the racket (claim 1); (2) a self powered piezoelectric damping system including at least one transducer element laminated to the racket frame and at least one circuit affixed within a slot in the handle portion of the racket (claim 6); and (3) a self powered piezoelectric damping system including at least one transducer element and at least one circuit, the at least one circuit located within a racket handle portion (claim 11).

To establish a *prima facie* case of obviousness under § 103, three basic criteria must be met. M.P.E.P. § 2143 (8th ed. 2001). “First, there must be some suggestion or motivation . . . to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success.” *Id.* Third, “all the claim limitations must be taught or suggested by the prior art.” M.P.E.P. § 2143.03. Because the prior art does not teach or suggest all of the claim limitations, the Examiner has failed to meet the third requirement for establishing a *prima facie* case of obviousness. Accordingly, the Board should reverse the Examiner’s rejection of claims 1-14.

A. The Cited Prior Art Does Not Disclose or Suggest a Racket Having a Self Powered Piezoelectric Damping System Including a Circuit Located Within the Racket Handle Portion

The Examiner has failed to establish a *prima facie* case of obviousness because the combined references do not disclose or suggest a racket having a self powered

piezoelectric damping system including a circuit located within a racket handle portion, as required by claims 1, 6 and 11 (see Appendix). Vandergrift and Hagood are completely devoid of any teaching or suggestion of a racket. Accordingly, Vandergrift and Hagood cannot provide the required teaching of a racket having a self powered piezoelectric damping system including a circuit located within a racket handle portion.

Lazarus discloses a racket having piezoelectric elements located proximate to a handle and neck portion of the racket. See Figs. 10 and 10A, column 3, lines 46-50, and column 14, lines 13-19 of Lazarus. The racket disclosed in Figs. 10 and 10A of Lazarus, however, does not include a circuit electrically connected to the piezoelectric elements. Accordingly, Lazarus cannot provide the required teaching of a racket having a self powered piezoelectric damping system including a circuit located within a racket handle portion.

Further, the Examiner has stated that official notice is not being relied upon to provide a teaching of the missing claim limitations. In particular, the Examiner states in the final Office Action that the rejection does not take official notice of the existence of a racket having a self powered piezoelectric damping system including a circuit located within a racket handle portion. See lines 1-3 of the second full paragraph of page 3 of the final Office Action. Thus, since the cited references fail to disclose or suggest each and every element of independent claims 1, 6 and 11, and the Examiner has stated that official notice of the missing claim limitations has not been taken, a *prima facie* case of obviousness has not been established. Accordingly, the rejection of claims 1-14 should be withdrawn.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

The Examiner attempts to overcome the deficiencies in the cited prior art by stating that "it should be realized that the control circuitry of the Vandergrift racquet as modified above must be located on the racquet itself, i.e., the frame or the handle" (lines 6-8 of the second full paragraph of page 3 of the final Office Action). This conclusion, however, does not itself provide a teaching of the missing claim limitations and improperly ignores the size and durability requirements associated with connecting a circuit to a racket rather than a ski. The design of a circuit for a self powered piezoelectric damping system that is small enough to fit within, and be protected within, the handle portion of a racket is an aspect of Appellant's invention that is not disclosed or suggested by the prior art. This fact equally contradicts the Examiner's statement that it would be an obvious matter of design choice to place the circuitry anywhere on the racket, including the handle. See the last three lines of page 3 of the final Office Action.

For all of the above reasons, Appellant requests that the rejection against independent claims 1, 6 and 11 be reversed, along with claims 2-5, 7-10, and 12-14 that depend from claims 1 and 6.

B. The Cited Prior Art Does Not Disclose or Suggest a Racket Having a Self Powered Piezoelectric Damping System Including at Least One Transducer Element Laminated to the Racket Frame

The cited prior art does not disclose or suggest a racket having a self powered piezoelectric damping system including at least one transducer element laminated to the racquet frame, as required by independent claims 1 and 6. As noted above, Vandergrift and Hagood are completely devoid of any teaching or suggestion of a racket. Further, Lazarus discloses a racket having piezoelectric elements located within

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

the core of the racket frame, but does not disclose the piezoelectric elements laminated to the racket frame. See Fig. 10 of Lazarus. Accordingly, Vandergrift, Lazarus and Hagood cannot provide the required teaching of a racket having a self powered piezoelectric damping system including at least one transducer element laminated to a racket frame.

The Examiner attempts to overcome the deficiencies in the cited prior art by stating that Hagood discloses a thin layer of piezoelectric composite sandwiched between structural layers, and therefore the Hagood structure corresponds to the claimed laminated structure. See page 3, lines 3-7 of the final Office Action. These structural aspects of the composite structures taught by Hagood, however, are irrelevant to the claim limitations at issue. The claim limitations at issue are directed to the laminating process by which the at least one transducer element is affixed to the racket. Hagood does not disclose or suggest such a laminating process to a racket frame, and accordingly does not recognize the difficulties associated with coupling a transducer element to the small surface area of a racket frame.

For the above reasons, Appellant request that the rejection against independent claims 1 and 6 be reversed, along with claims 2-5, 7-10, 12 and 13 that depend from claims 1 and 6.

C. The Cited Prior Art Does Not Disclose or Suggest a Racket Having a Self Powered Piezoelectric Damping System Including a Circuit Affixed Within a Slot of a Handle Portion of the Racket

The cited prior art does not disclose or suggest a racket having a self powered piezoelectric damping system including a circuit affixed within a slot of a handle portion of the racket, as required by independent claim 6. As noted above, Vandergrift and

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Hagood are completely devoid of any teaching or suggestion of a racket. Further, Lazarus discloses a racket having piezoelectric elements located within the core of the racket frame, but does not disclose a circuit affixed within a slot of a handle portion of the racket. Accordingly, Vandergrift, Lazarus and Hagood cannot provide the required teaching of a racket having a self powered piezoelectric damping system including a circuit affixed within a slot of a handle portion of the racket.

The Examiner attempts to overcome the deficiencies in the cited prior art by stating that the shape of the space storing the circuitry is not considered to be critical. Appellant disagrees with the Examiner's assertion and submits that the shape of the opening is a factor in the performance of the racket. Wherein, if the circuitry were not located in a narrow groove or opening (slot), but rather, for example, in a large circular opening, the strength and playing characteristics of the racket would be affected. Accordingly, it is improper for the examiner to summarily and subjectively ignore limitations in a claim because the Examiner considers the limitations to be less important than other features of the claim.

For the above reasons, Appellant request that the rejection against independent claim 6 be reversed, along with claims 7-10 and 13 that depend from claim 6.

IX. Conclusion

For the reasons given above, pending claims 1-14 are patentable. The Board of Patent Appeals and Interferences should therefore reverse or dismiss all of the outstanding rejections and allow claims 1-14.

To the extent any further extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If

there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 that are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: July 21, 2003

By:

Roland G. McAndrews
Reg. No. 41,450

Post Office Address (to which correspondence is to be sent)

Finnegan, Henderson, Farabow,
Garrett & Dunner, L.L.P.
1300 I Street, N.W.
Washington, D.C. 20005
(202) 408-4000

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

APPENDIX TO APPEAL BRIEF FOR APPLICATION NO. 09/918,437

CLAIMS:

1. A racket comprising:

a racket frame comprising a racket handle portion orientated along a longitudinal axis of the racket, a racket head portion allowing for the attachment thereto of generally longitudinally directed strings and generally laterally directed strings to form a string bed of the racket, and a racket throat area joining the handle portion with the head portion; and

a self-powered piezoelectric damping system comprising at least one transducer element laminated to the racket frame and at least one circuit located within the racket handle portion and electrically connected to the at least one transducer element.

2. The racket of claim 1, wherein the racket comprises two transducer elements electrically connected to the circuit.

3. The racket of claim 1, wherein the at least one transducer element is located at the racket throat area.

4. The racket of claim 3, wherein the racket comprises two transducer elements, both transducer elements located at the racket throat area and electrically connected to the circuit.

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Washington, DC 20005
202.408.4000
Fax 202.408.4400
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5. The racket of claim 1, wherein the racket further includes a protective coating covering the at least one transducer element.

6. A racket comprising:

a racket frame comprising a racket handle portion orientated along a longitudinal axis of the racket, a racket head portion allowing for the attachment thereto of generally longitudinally directed strings and generally laterally directed strings to form a string bed of the racket, and a racket throat area joining the handle portion with the head portion; and

a self-powered piezoelectric damping system comprising at least one transducer element laminated to the racket frame and at least one circuit located within the racket handle portion and electrically connected to the at least one transducer element, wherein the racket handle portion includes a slot in the racket handle portion and the circuit is affixed within the slot.

7. The racket of claim 6, wherein the slot extends completely through the racket handle portion.

8. The racket of claim 6, wherein the slot is at least partially filled with a foam to fix the circuit within the slot.

9. The racket of claim 6, wherein the circuit includes a circuit board and the circuit board is affixed to the racket handle portion.

10. The racket of claim 1, wherein the circuit is affixed to an end cap of the racket and the end cap is affixed to the racket handle portion.

11. A racket comprising:

a racket frame comprising a racket handle portion orientated along a longitudinal axis of the racket, a racket head portion allowing for the attachment thereto of generally longitudinally directed strings and generally laterally directed strings to form a string bed of the racket, and a racket throat area joining the handle portion with the head portion; and

a self-powered piezoelectric damping system comprising at least one transducer element and at least one circuit located within the racket handle portion and electrically connected to the at least one transducer element.

12. The racket according to claim 1, wherein the at least one transducer element includes piezoelectric fibers.

13. The racket according to claim 6, wherein the at least one transducer element includes piezoelectric fibers.

14. The racket according to claim 11, wherein the at least one transducer element includes piezoelectric fibers.